BENEFON TRACKBOX

Operating Instructions

LANGUAGE	DECLARATION OF CONFORMITY
Spanish	Mediante el presente documento, Benefon declara que este teléfono móvil, del tipo TGP78EB, satisface los requisitos esenciales y todas las demás disposiciones pertinentes de la Directiva 1999/5/EC.
Danish	Benefon Oyj erklærer herved, at denne mobiltelefon af typen TGP78EB er i overensstemmelse med de væsentlige krav og andre relevante betemmelser i Directive 1999/5/EC.
German	Hiermit erklärt Benefon Oyj, daß dieses Mobiltelefon vom Typ TGP78EB die wesentlichen Anforderungen und andere relevante Bestimmungen der Richtlinie 1999/5/EC erfüllt.
Greek	Με το παρόν, η Benefon Oyj δηλώνει ότι αυτό το κινητό τηλέφωνο, τύπου TGP78EB, συμμορφώνεται με τις ουσιώδεις απαιτήσεις και άλλους σχετικούς όρους της Οδηγίας 1999/5/EC.
English	Hereby, Benefon Oyj declares that this mobile phone, type TGP78EB, is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
French	Benefon Oyj déclare par les présentes que ce téléphone mobile, de type TGP78EB, est conforme aux exigences essentielles et aux dispositions correspondantes de la Directive européenne 1999/5/EC.
Italian	Benefon Oyj dichiara che questo modello di telefono cellulare, tipo TGP78EB, risponde alle principali specifiche e misure previste dalla Direttiva 1999/5/EC.
Dutch	Bij deze verklaart Benefon Oyj dat deze mobiele telefoon, type TGP78EB, voldoet aan de voornaamste eisen en andere relevante voorwaarden van Richtlijn 1999/5/EC.
Portuguese	A Benefon Oyj declara pela presente que este telemóvel, do tipo TGP78EB, está em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva 1999/5/EC.
Finnish	Benefon Oyj vakuuttaa, että tämä matkapuhelin, tyyppiä TGP78EB, on direktiivin 1999/5/EC olennaisten vaatimusten ja muiden asianomaisten määräysten mukainen
Swedish	Härmed förklarar Benefon Oyj att denna mobiltelefon, typ TGP78EB, överenstämmer med de grundläggande kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

Manufacturer: Benefon Oyj, P.O. Box 84, 24101 Salo, Finland
Web site: www.benefon.com

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CONTENTS

PART A: CONFIGURING SETTINGS FOR THE TRACKBOX

There are two ways to configure settings for the Trackbox:

- You can use **MPTP commands** and transfer settings *remotely*, over the air by sending a protocol message to the device.

- You can use the **Benewin Trackbox software** for configuring settings and transfer them to the device *locally*, via the BWTrackbox data/NMEA cable. The BwTrackbox cable must be purchased separately, it is not included in the Trackbox sales package.

MPTP MESSAGES AND REMOTE CONFIGURATION (OTA)

MPTP configuration commands are used when **a remote** update of the device configuration is needed.

Update can include all telematics settings and phone numbers, such as emergency numbers, status messages, authorized numbers, GPS operating mode. MPTP updates also include commands for daily usage, such as location request and tracking commands.

The remote configuration can be used for transferring the settings only in case the settings are coded as MPTP messages.

For more information on MPTP messages, please see the separate documents: **Mobile Phone Telematics Protocol (MPTP),** located at the Web site: **www.benefon.com**

THE BENEWIN TRACKBOX SOFTWARE

The BeneWin Trackbox software is intended for configuring settings locally for the Trackbox.

Since the BeneWin is very easy to use, it is advisable to make initial and other major configurations for the device with this software. The settings done with the BeneWin software can be transferred to the Trackbox via the BWTrackbox cable.

Another, slightly quicker way to transfer configurations made by Benewin is to use the **SetupLoad** software.

The Benewin software consists of four main groups of settings: Short messages, Phone books, User settings and Telematics settings. The settings are divided up into pages and groups including several data fields, such as **Tracking settings**, **Emergency settings**, **GPS settings**, **Message settings**, **Protocol settings** and so on.

When you are finished with editing the settings, you can either transfer the settings back to the device via the BWTrackbox cable immediately, or save them in a computer disk (as any normal file) for further use.

Connecting the Trackbox to the Benewin software
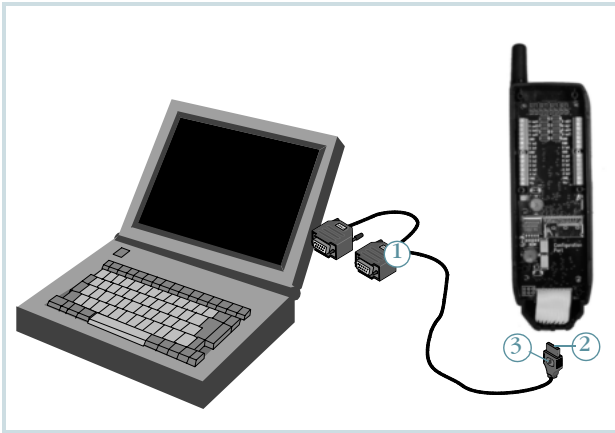
1. The BWTrackbox Data/NMEA cable contains two square-end adapters. Plug the **data adapter** (1) into a serial port. Serial ports are located at the back panel of your computer.

2. Next remove the back cover of the device by screwing it off. Plug the **flat end of the BWTrackbox cable** (2) in the configuration port of the device. Make sure the release button (3) is facing up.

THE CONFIGURATION PORT

In order to transfer configurations made by Benewin, the BWTrackbox cable must be plugged in the device´s configuration port.

The **configuration port** is located inside the device, in the lower part of the accessory module.

Only in case the BWTrackbox cable is intended for **continuous** use, you may pierce a hole to the elastomer for the cable inlet. Otherwise, leave it intact for improving dust and water protection.
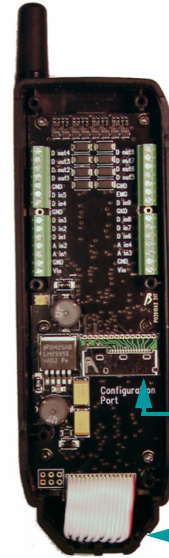
3. Open the BeneWin software.

4. Choose the correct serial port from the **toolbar**: Click the pop-up menu and highlight the desired port.

```
COM1  ▼
```
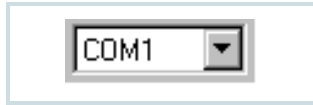
Or, choose **Settings** from the **Edit** menu. Select the **Default communication port** by clicking the check box. Click **OK** to exit the menu.

> **THE MAIN IDEA IS THAT THE PORT SELECTED IN SOFTWARE MATCHES WITH THE PORT, THE DATA ADAPTER IS PLUGGED IN.**

5. Double-click the main node **My Benefon**. **Or**, double-click the **Trackbox** icon. **Or**, choose **Connect** from the **Mobile** menu. **Or**, click the button **Connect** located on the toolbar.

```
Connect
```

6. The software establishes a connection to the device and renames **My Benefon** node according to the type and the model of the device, in this case **Trackbox**.

7. At the same time, the software reads data from the device and loads it in the display. The data contains currently existing settings and menus from the device. These settings and menus are shown as sub-nodes, such as **Messages, User settings,** and **Telematics settings**. The nodes are structured as the **Benetree** on the left side of the display.

8. If the software requests security code while loading the settings, you must key in the code and press **Ok**. For more information on security code, see SECURITY CODE ON PAGE 39.

9. Click the name label **Trackbox**. The sub-nodes will be displayed as icons on the working area, i.e. the **Document window**, on the right.

10. You can select the desired sub-node/icon by clicking it. The data fields will be displayed.

Loading settings from the Trackbox to the software

As you connect the device to the software, all current settings in the Trackbox are copied to the software.

To load only part of the settings to the software, choose **Settings** from the **Edit** menu (before pressing **Connect** button). Check the desired setting groups - the groups are shown in the **Mobile phone start up tasks**. Click **Ok** while the dialog box is displayed.

Unloaded settings can be loaded afterwards in the same session by choosing **Open XXsettings** from the **Mobile** menu.

Saving settings in a computer disk (working off-line)

1. If the device is not currently connected to the software, you can still make configurations, save them and transfer them to the device afterwards. When working off-line, data fields are available for editing via **My computer** node.

2. To save data in a computer disk, choose **Save as...** from the **File** menu.

3. Select the destination drive and folder, and rename the file the way you like. Click **Save**. The software stores all data fields that the chosen node contains.

Transferring settings from the software to the Trackbox

While the BeneWin software is connected to the Trackbox, you can save data in the Trackbox.

1. First open the BeneWin document which content you want to save in the Trackbox.
   Settings which are previously stored in a computer disk can be recalled by choosing **Open** from the **File** menu, or pressing the corresponding **function icon** on the tool-bar.

2. Choose **Save To Mobile** from the **File** menu.
   Or, click the **function icon** on the toolbar.

When transferring data to the device, the previous data is replaced with the new data.

Disconnecting the Trackbox from the software

1. Choose **Disconnect** from the **Mobile** menu.
   Or, click the button **Disconnect** on the toolbar.

2. Press and hold down the release button while removing the BWTrackbox cable from the device. (The release button is located on the top of the flat end of the BWTrackbox cable.)

3. In case the inlet for the BWTrackbox cable is pierced, but the cable is taken off, the hole must be covered with some waterproof material, such as a piece of firm tape or silicon. This needs to be done for improving water protection.

4. Screw the back cover back in.

SHORT MESSAGES

In order to read, write, send and receive normal short messages via the Trackbox, the Trackbox must be connected to an external device.

The device attached to the Trackbox can be e.g. a computer, a laptop or a palm computer. Since the Trackbox lacks the keyboard and screen, the external device must be provided with these. The physical connection is established with the BWTrackbox cable.

A suitable software, for example the Benewin Trackbox, is needed for the communication as well.

Reading and editing existing messages

1. Open the Benewin software.

2. Double-click the icon **SMS messages**.

Messages are listed and can be read.

Editing: Double-click the message you want to edit. Edit text and other details in the **SMS edit** buffer. Click **Ok** when ready.

Deleting a short message

To delete a short message, highlight the message and choose **Sms**, **Delete message** from the **Edit** menu.
Or, select **Delete** by pressing the mouse´s right button.

Writing and sending a short message

1. Choose **Sms**, **New message** from the **Edit** menu. The **SMS edit** buffer will be displayed.

2. Key in the message text (1) and the recipient´s number(2). By clicking the square next to the number (3), the recipient´s number can be fetched from the **Phone book**, assuming the number is found on SIM.

3. Make sure, the **Sms service number** is correct. The number can be changed by clicking the square next to it (4). By selecting the option **SIM card default,** the SMS service number will be picked up from the SIM card. If the SIM card does not contain the SMS number, select the option **Own** and key in the SMS service number.

4. Select the desired Saving/Sending option by checking one of the **Action** boxes (5).

5. Complete the message by pressing **Ok**.

PHONE BOOKS

As you open the **Phone books**, the memory entries stored on the SIM card are listed and can be processed. **Index** number stands for memory slot number.

Editing and adding an entry

1. **To edit** details of an entry, highlight the desired entry (1). **To add** a new phone book entry, click a blank line.

2. Key in the name and number in the *lower part* of the **Document window** (2).

3. By pressing **Tab** on the keyboard you can move from a data field to another.

4. Press **Enter** on the keyboard to confirm changes.

Deleting entries

1. To delete a phone book entry, click the desired entry.

2. Press **Delete** on the keyboard. You can also choose the command **Delete** from the **Edit** menu, or by clicking the mouse´s right button.

Arranging entries

Arrange the phone book by **Index**, **Name**, or **Number** (3) either by

- clicking the title
- choosing the option from the **Edit** menu
- clicking the mouse´s right button.

- **View by**: This option rearranges the phone book **temporarily**. When transferring the phone book data back to the phone, the data will be arranged by the old order.

- **Sort by**: This option rearranges the phone book **permanently**. When transferring the phone book data back to the phone, the data will be arranged by the new order.

Moving and copying entries

1. To move or copy a phone book entry to another slot, click the desired entry.

2. Press **Ctrl+C** (for copy) or **Ctrl+X** (for cut) on the keyboard. Click the destination line and press **Ctrl+V** (for paste) on the keyboard.

   You can also choose the commands **Copy**, **Cut** and **Paste** from the **Edit** menu, or by clicking the mouse´s right button.

   Or, you can click the corresponding **function icons** on the toolbar.

| Copy | Cut | Paste |
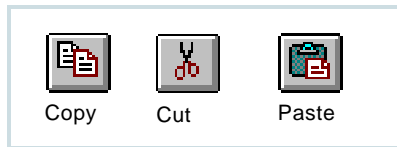
3. If the destination line is reserved, you also need to confirm, whether to overwrite the old information or not.

   - To overwrite the old information, click **Yes** in the dialog box.
   - To preserve the old information and transfer the new information to another, free slot (Index number), click **No** in the dialog box.

USER SETTINGS

Phone time and date
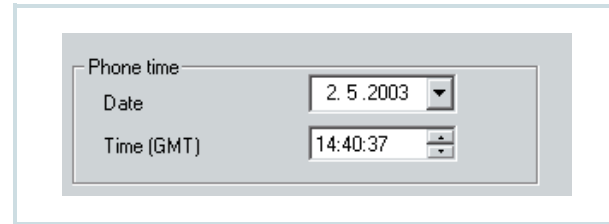
Time and date can be set in the Benewin software. Key in the time and date in the GMT format ("Greenwich Time"). Date and time can be selected by clicking the arrows, as well.

Time stamps associating MPTP messages are displayed in the GMT format, as well.

Activity timer

Device can be configured to update its position e.g. once a day and report it to the service center.

Activity timer can also be used to wake up the device periodically to check if there are any incoming messages. If there are no messages, the timer will return to sleep for the next wake-up.

Power up/down cycle is reasonable for saving power, especially in case the device is a plain battery model.

SETTING THE ACTIVITY TIMER

1. **Start time**: Key in the date and time, when the timer is switched on for the first time. Start time can be selected by clicking the arrows (1), as well.

2. **Interval**: Key in the interval for wake-up (2). If the interval is set to zero, the timer is NOT in use.

3. **Positioning skip**: It may not be necessary to determine current position each time when the timer is turned on. By setting a value N for the position skip (3), the device can be programmed to only determine the position every Nth time the timer is turned on.

Message settings

SMS SERVICE NUMBER

You can store the SMS service number, which is needed for sending normal short messages and telematics protocol messages.

The number must be set correctly, otherwise sending short messages is not possible.

The SMS service number can be found e.g. in the manual of your local network operator.

However, if you are supplied with a separate SMS service number for telematics protocol messages, you may store the number in the **Protocol settings** data field. For more information, see **GENERAL TELEMATIC SETTINGS ON PAGE 24**.

Configuring separate SMS service number for protocol messages is recommended in case the **Activity timer** is used.

MESSAGE TYPE

You can determine what kind of a message you are processing. You can choose the message type from these: **Text**, **Fax**, **X400**, **Email**, **Ermes**, or **Data**.

Click the arrow and highlight the desired option.

MESSAGE VALIDITY TIME

You can select the length of validity for *normal SMS messages*, i.e. for how long the SMS messages are stored in the server of the operator.

You can choose the message validity from these: **1 hour**, **6 hours**, **24 hours**, **1 week** or **Maximum time**.

Click the arrow and highlight the desired option.

NOTE: The length of validity for *telematics protocol messages* is selected in **General telematic settings**. For more information, see **GENERAL TELEMATIC SETTINGS ON PAGE 24**.

Port and audio settings
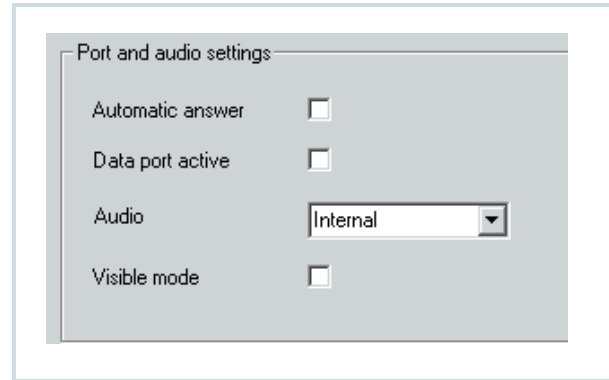
AUTOMATIC ANSWER

The automatic answer function can be turned on or off.

• If the **Automatic answer** is turned on (the box is checked), a voice call to the device **from any number** is possible.

• If the **Automatic answer** is turned off (the check box is left blank), making a voice call to the device can only be done **from a number listed as an allowed caller**. Allowed callers are stored in the **General telematics settings**. For more information, see **GENERAL TELEMATIC SETTINGS ON PAGE 24**.

The device contains a built-in microphone. By making a call to the Trackbox, the caller (e.g. service center) can listen in the Trackbox and its surroundings. After certain number of rings, the device answers an incoming call automatically by opening audio connection.

DATA PORT ACTIVITY

Data port setting must be turned on in case the Trackbox is needed for data transfer or connected to some external device.

Turning the data port off decreases power consumption.

• To turn the data port on, check the box.

• To turn the data port off, leave the check box blank.

AUDIO

• Internal: The device contains an internal microphone and uses it.

• External: Audio comes from some external device via the configuration port.

Click the arrow and highlight the currently used option.

VISIBLE MODE

The device can be set to operate
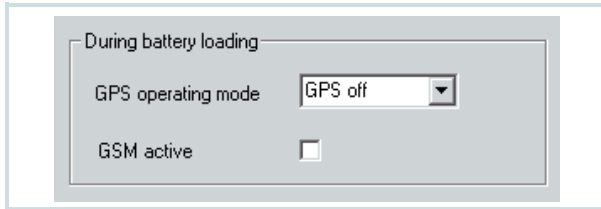
• In visible mode (the box is checked) or

• In invisible mode (the box is left blank).

In Visible mode the LEDs are lit as described in the Trackbox Installation Guide.

Invisible mode is for making the device more difficult to detect. In invisible mode only some of basic LED patterns are lit, e.g. powering up/down. This way e.g. sending emergency messages can be done very discreetly.

Settings during battery loading

GPS OPERATING MODE

You can select, which one of the GPS power modes is on while the device is being charged.

Set the **GPS off**, in case

• the time reserved for charging is quite short or

• GPS functions are not needed during charging process.

By selecting **No change**, the GPS mode remains in the previously configured mode.
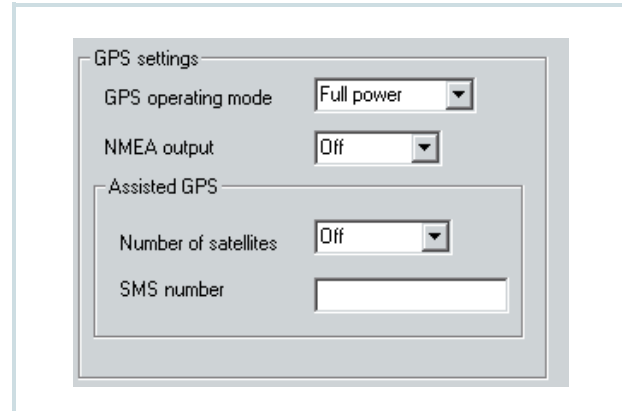
GSM ACTIVATION

You can select, whether the GSM is turned on or off while the device is being charged.

In case the GSM functions are needed even during the charging, this setting must be turned on.

By checking the box, the GSM is activated during charging.

GPS settings

GPS OPERATING MODE

The GPS receiver in the Trackbox uses power saving options for ensuring maximum battery capacity.

The GPS receiver has three modes:

• **Off**

• **Low Power** with the power saving option

  - the time needed for position fix depends on conditions. If the GPS does not manage to calculate the position, it will fall asleep for a while and retry to calculate the position later on

• **Full power** without the power saving option.

Operating mode depends on the way, the device is used.

Autonomous system, i.e. a plain battery model, normally uses either **Low Power** or **Off** mode, while a device with constant power supply uses **Full Power** mode
(i.e. the standard and I/O models).

GPS ECONOMY POWER INTERVAL

Key in the interval for sleeping time in the GPS **Economy** mode. In addition to sleeping time, the device needs some time for searching satellites and calculating position (the time needed for this depends on present circumstances).

NOTE: This setting is only available in some special models.

NMEA OUTPUT

The NMEA port output can be turned on or off. This device supports the NMEA 0183 v2.0 output protocol, which is used for transferring position data between the device and a navigation system, such as a Search and Rescue application. For the connection you also need a BWTrackbox Data/NMEA cable (an accessory).

- By selecting **Off**, you will turn the NMEA output port off.
- By selecting a transferring speed you will turn the NMEA output port on.

When the **NMEA output** is turned on, the device will consume slightly more power.

ASSISTED GPS

Trackbox has capability to receive assistance to the GPS receiver in order to speed up the initial position calculation. This is very useful feature if the device is in poor satellite coverage.

Assistance can be supplied over the Mobile Phone Telematics Protocol in a binary coded protocol message. The message will contain ephemeric and almanac data which is based on a rough position calculated by e.g. GSM network parameters (Cell-ID, CI-TA etc). The assisted GPS is supplied from a third party station server.

Using the AGPS does NOT affect the accuracy of the position. If the last position fix is deemed to be too old, and the AGPS is set, the AGPS feature is automatically used to speed up the position determination.

The cost of the AGPS service is determined on the contract of the service provider.

You can specify settings for ordering assisted GPS information from a service provider.

• **Number of satellites:** Select the number of satellites. However, please note that the more satellites selected, the faster the service but the higher the charge.

• **SMS number**: Key in the SMS number of the AGPS service.

TELEMATIC SETTINGS

Tracking settings

TRACKING

Tracking is remotely controlled by the service center. When the tracking function is turned on, the position information is sent to the service center several times in sequence.

If the device is temporarily switched off, battery is removed, or the power supply is some other way disconnected, the tracking record (e.g. amount of messages) will be reset and start from the beginning.

Essential phone numbers, such as **Service center number** and **SMS service number,** must be configured in the device. In the Benewin software, these numbers can be set in the **General telematic settings**. For more information, see .

Interval

The given interval, e.g. 60 minutes, indicates that the device will send its position to the service center at intervals of 60 minutes. Key in the tracking interval in minutes.

PART A: CONFIGURING SETTINGS FOR THE TRACKBOX

Duration

You can select, for how long or on what terms tracking will be on. After that, the tracking will be turned off automatically. Only one of these options can be turned on at once.

• **Continuous**: The tracking will be turned on until further notice. !Deactivation message must be sent separately.

• **Amount of sent messages**: Tracking will be on until defined amount of messages has been sent to the service center. Key in the amount.

• **Duration**: Tracking will be on for a period of time. Key in how many days, hours and minutes, the tracking should be on.

• **End time**: Tracking will be on until the end time is reached. Key in the date and time, the tracking should be turned off. Date and time can be selected by clicking the arrows, as well.

Activation

Make sure all the required settings for tracking are completed before activating the function. Such settings are, e.g. duration and interval.

New settings can be applied only while the tracking is deactivated.

There are two ways to turn the tracking on or off:

• **Remote activation/deactivation**: Send a specific MPTP message to the device.

• **Local activation/deactivation**: Set tracking on or off by using the Benewin software (or some similar application) and transfer the setting to the device via the data cable.

In the Benewin set the tracking as follows:

1. Make sure, the device is connected to the Benewin.

2. Click the **Mobile** menu.

3. Select **Activate**/**Deactivate** in the pop-up menu, and finally click the **Send tracking activation/deactivation request** button.

4. The tracking will be turned on only after the service center sends a confirmation message.

REAL TIME TRACKING

The Real time tracking can be initiated by sending a detailed MPTP message to the device.

Real time tracking is done via CSD data call. After successful connection the device starts to forward NMEA data directly from the GPS over CSD call.

If sending a CSD call fails, the device will send an SMS message informing what went wrong.

- Key in the **CSD number**. The number must be configured in the device before the function can be used.

- Key in the **SMS number**. The number must be configured in the device, as well.

AREA TRACKING

Area tracking is remotely controlled by the service center (or some other authorized number). When the area tracking is turned on, the position information will be sent to the service center only when the device is moving in or out of the pre-defined area.

The area can be determined by keying in a center point and a radius of an area. The area tracking does not contain the duration option, i.e. the area tracking will never be turned off automatically.

Essential phone numbers, such as **Service center number** and **SMS service number** must be configured in the device. In the Benewin Trackbox software, these numbers can be set in the **General telematic settings**. For more information, see **GENERAL TELEMATIC SETTINGS ON PAGE 24**.

Interval

The given interval, e.g. 60 minutes, indicates that the device will send its position to the service center at intervals of 60 minutes, but only in case the device is located outside of the determined area.

Key in the interval for area tracking in minutes.

Center point

Key in the center point name (e.g. Home) and enter coordinates.

Radius

Key in the desired radius in 10 meters. E.g. by entering 5, your actual radius will be set for 50 meters (minimum).

Alarm mode

You can set an alarm to alert when crossing the borderline of an area.

The alarm can be set to alert either when arriving in or departing from the particular area.

Activation

Make sure all the required settings for area tracking are completed before activating the function. Such settings are, e.g. interval, center point, radius and alarm mode (at arrival or departure).

New settings can be applied only while the area tracking is deactivated.

There are two ways to activate the area tracking:

- **Remote activation/deactivation**: Send a specific MPTP message to the device.
- **Local activation/deactivation**: Set the area tracking on or off by using the Benewin software or some similar application and transfer the setting to the device via the data cable.

In the Benewin set the area tracking as follows:

1. Make sure, the device is connected to the Benewin.

2. Click the **Mobile** menu.

3. Select **Activate**/**Deactivate** in the pop-up menu, and finally click the **Send area tracking activation/deactivation request** button.

4. The area tracking will be turned on only after the service center sends a confirmation message.

General telematic settings

SERVICE CENTER NUMBER

You can change and store the phone number, which is used for sending telematics protocol messages to the service center.

Key in the number for the service center.

LIST OF ALLOWED CALLERS

You can set several numbers for allowed callers. You can also attach the automatic answer function to the desired numbers.

Allowed callers are the ones, who are permitted to call to the device at any time: Calls from these specific numbers are always put through.

Key in the name and the number of an allowed caller. If you want the device to answer automatically to calls coming from certain numbers, make sure to check those boxes, as well.

PROTOCOL SETTINGS

Authorization

You can select whether to receive protocol messages **from anyone or only from authorized numbers**.

- If the authorization setting is Enabled, only authorized numbers are valid senders of a protocol message and reply to the protocol message will be sent back to the same number.
- If the setting is Disabled, the sender of a protocol message can be anyone, e.g. the message can be sent from the Internet or the number can be blank. If the service center number is set, reply is always sent to the service center. If the service center number is NOT set, reply is sent to the sender of a protocol message (assuming the sender´s number is available).

MPTP protocol message storage

If sending of an MPTP message fails, the device will send the message later, assuming the MPTP protocol message storage is turned on and there is space left to deposit the message.

- To turn the message storage on, check the box.
- To turn the message storage off, leave the check box blank.

By checking the box, you select that the telematics protocol messages are put into storage, if e.g. there is no service at the moment. The storage capacity is 100 messages. After the device is in service again, these messages are automatically sent forward.

Message validity

You can select the length of validity for *telematics protocol messages*, i.e. for how long the SMS messages are stored in the server of the operator.

This setting can be used to avoid massive helping efforts in case an emergency message has been sent a week ago and there is reason to believe that help is no longer needed.

You can choose the message validity from these: **1 hour**, **6 hours**, **24 hours**, **1 week** or **Maximum time**.

The length of validity for normal SMS messages is selected elsewhere, in the **User settings**. For more information, see .

SMS service number

You can set separate SMS service number for the telematics protocol messages. If the number is not set, the normal short message service number is used instead.

Emergency settings

EMERGENCY CONFIRMATION

You can request the emergency center to send *a confirmation* of the emergency message. The emergency center will then send the confirmation to the device as soon as it receives the emergency message. Check the box to enable confirmation, or leave the check box blank to disable confirmation.

You can also specify *a waiting time,* i.e. for how long a time the device waits for the confirmation before trying to reach some other emergency center number. Click the arrow and highlight the desired option.

EMERGENCY CALL CYCLE MODE

You can define the order for making emergency voice calls and sending emergency messages while the emergency call cycle is on.

You have two choices:

• **Alternately**: The device will make a voice call and send an SMS in pairs according to the list order, starting from the top.

• **First SMS, then calls**: As the emergency call cycle is initiated, first the device will send the emergency messages, after which the voice calls will be made starting from the top of the list.

EMERGENCY CALL CONNECTION WAITING TIME

You can define for how long a time the device tries to call a single emergency center number before moving on to the next number in the list of emergency center numbers.

Click the arrow and highlight the desired option.

EMERGENCY CENTER NUMBERS

The emergency (SOS) messages are sent and emergency calls are made to the numbers stored in the emergency center list.

The numbers are in priority order, starting from the top of the list. These numbers work as "a chain":
If the first number is unreachable (after two attempts), the device calls or sends the short message to the second number. If it is not answered either, the device will go on to the third number on the list and so on.

The device tries to reach contact with the other numbers once before moving on to the next number in the list. If there is still no answer after going through the whole list, the calling procedure will be started all over.

You can have two numbers (a phone number and an SMS) associated with each emergency center number.

To enable a number, check the box which associates the number.

DIGITAL INPUT PIN
FOR EMERGENCY CALLS

There are several configurable settings for the emergency input pin:

Turning the emergency pin on or off

• **Enabled**: The emergency input pin is in use when the box is checked.

• The input pin is NOT in use when the check box is left blank. A signal of this pin is NOT detected at all.

Setting normal status

• **Status**: The circuit can be set to be closed **High,** or opened **Low**. Click the arrow and highlight the desired option.

• A change in the state of a circuit causes grounding of a pin. An event causing this could be, e.g. pressing the emergency switch.

• After the change is registered, the device will start an emergency cycle and also store the information in the **Event log**, if the Event log is enabled.

   - For more information on Emergency cycle, see **EMERGENCY CYCLE (I/O MODEL ONLY) ON PAGE 42**.

   - For more information on Event log, see **EVENT LOG ON PAGE 35**.

Defining response time

Notification delay: The device can be configured to allow some millseconds to pass until the event will be registered or interpreted as a cause for making an alarm.

Key in the time for allowed delay in millseconds.

Authorized numbers

The device is allowed to send protocol messages to the *authorized numbers* automatically.

Authorized numbers are:

- the numbers stored in the **Authorized numbers** list *and*
- the **Emergency center numbers** *and*
- the **Service center number**.

For more, see and .

NOTE: If the requesting number is *unauthorized*, sending response depends on **Authorization** and **Service center number** settings.

- **Authorization** setting **Enabled**, -> The device ignores the request, i.e. does nothing.
- **Authorization** setting **Disabled**, **Service center number** NOT set ->Response goes to the requesting number.
- **Authorization** setting **Disabled**, **Service center number** is set ->Response always goes to service center.

For more on **Authorization** setting, see .

Status messages

A status message is a special short message, which includes the status message text, additional text information and the position information (i.e. coordinates or some other MPTP information). If the current position information is not available, the previous coordinates will be sent instead.

Message text can contain information on opened/closed door, temperature/liquid level changes etc.

Creating status messages

In the Benewin software you can create and define status messages. Key in the desired status message text (1) and the phone number (2) to which the status message will be sent. In case receiving party of a status message needs to be authorized for some reason, make sure to copy the corresponding destination number to the list of authorized numbers.

Additional information (3) can - according to your choice - include details of some sort but the data field can be left blank, as well.

Status messages are related to certain pins. The status messages 1 - 9 on the upper data field (4) stand for digital input pins 1 - 9.
The status messages 1 - 4 on the lower data field (5) stand for analogue input pins 1 - 4.

Pin settings

DIGITAL OUTPUTS

Turning the output pin on or off

• **Enabled**: The output pin is in use when the box is checked (1).

• The output pin is NOT in use when the check box is left blank. A signal of this pin is NOT detected at all.

Setting normal status

• **Status**: The circuit can be set to be closed **High** (2), or opened **Low**. Click the arrow and highlight the desired option.

• A change in the state of a circuit causes grounding of a pin. The change can be done by sending a specific MPTP message to the device. The desired action could be, e.g. swiching an electric sauna on remotely.

• After the change is registered, the device will proceed the way it is configured: It will store the information in the **Event log** (if the **Event log** is **Enabled**) and/or send a notification of the event to the requesting number as a reply (if the **Notification enabled** is checked).

Sending notification

• **Notification enabled**: By checking the box (3), the device will send a notification (as a digital output pin control msg) if the normal status of this pin changes.

• By leaving the check box blank, the device will NOT send notifications at all.

DIGITAL INPUTS

Digital input pins

| Pin	Enabled	Status	Notification enabled	Notification delay	
1	☐	Low ▼	☐	0	ms
2	☐	Low ▼	☐	0	ms
3	☐	Low ▼	☐	0	ms
4	☐	Low ▼	☐	0	ms
5	☐	Low ▼	☐	0	ms
6	☐	Low ▼	☐	0	ms
7	☐	Low ▼	☐	0	ms
8	☐	Low ▼	☐	0	ms
9	☐	Low ▼	☐	0	ms

Setting normal status

• **Status**: The circuit can be set to be closed **High,** or opened **Low**. Click the arrow and highlight the desired option.

• A change in the state of a circuit causes grounding of a pin. An event causing this could be, e.g. opening a door.

• After the change is registered, the device will proceed the way it is configured: It will store the information in the **Event log** (if the **Event log** is **Enabled**) and/or send a notification of the event to the pre-configured number as a status message (if the **Notification enabled** is checked).

Sending notification

• **Notification enabled**: By checking the box, the device will send a notification (as a status message) if the normal status of this pin changes.

• By leaving the check box blank, the device will NOT send notifications at all.

Defining response time

• **Notification delay**: The device can be configured to allow some millseconds to pass until the event will be registered or interpreted as a cause for taking an action. E.g. an action would take place only in case a door is wide open for at least X millseconds.

• Key in the time for allowed delay (2) in millseconds.

Turning the input pin on or off

• **Enabled**: The input pin is in use when the box is checked.

• The input pin is NOT in use when the check box is left blank (1). A signal of this pin will NOT be detected at all.

ANALOGUE INPUTS

Pin	Enabled	Status	Notification enabled	Notification delay		Low reference value		High reference value
1	☐	Low ▼	☐	0	ms	0.0	V	0.0
2	☐	Low ▼	☐	0	ms	0.0	V	0.0
3	☐	Low ▼	☐	0	ms	0.0	V	0.0
4	☐	Low ▼	☐	0	ms	0.0	V	0.0

Turning the input pin on or off

• **Enabled**: The input pin is in use when the box is checked.

• The input pin is NOT in use when the check box is left blank. A signal of this pin is NOT detected at all.

Setting normal status

• **Status**: The circuit can be configured to have level values for **High** and **Low**. Click the arrow and highlight the desired option.

• Exceeding a limit value causes grounding of a pin. An event causing this could be, e.g. a sudden increase/ decrease in liquid level or a crucial change in temperature.

• After the change is registered, the device will proceed the way it is configured: It will store the information in the **Event log** (if the **Event log** is **Enabled**) and/or send a notification of the event to the pre-configured number as a status message (if **Notification enabled** is checked).

Sending notification

• **Notification enabled**: By checking the box, the device will send a notification (as a status message) if the normal status of this pin changes.

• By leaving the check box blank, the device will NOT send notifications at all.

Defining response time

• **Notification delay**: The device can be configured to allow some millseconds to pass until the event will be registered or interpreted as a cause for executing an action.

• Key in the time for allowed delay in millseconds.

Setting reference values

Threshold values per full scale (0-10V) must be set separately for high and low.

Log settings

EVENT LOG

The device can be configured to collect incoming/outgoing data from the I/O pins. The device can also be configured to store plain positions at defined intervals.

Stored data may contain information on battery level, position, date and time, speed, direction, triggered event, event value, ID, type and so on.

Turning the Event log on or off

- **Enabled**: The device will gather pin information, i.e. events registered by a pin, in the **Event log**.

- **Disabled**: The device does NOT gather any pin information in the **Event log** (1).

Event log transmission limit

The limit (2) indicates how much space is left for events in the **Event log.** The smaller the number you set in here, the more stuffed the log will be before the device sends the log or even informs of it.

NOTE: Event log limit value depends on Flash memory capacity of the device model, e.g. Normal 3840 or Extended 7936 pieces at maximum.

The limit also works as a trigger: When the limit is reached, the device will take action, e.g. send the log information as a CSD data call to the pre-configured CSD number. Action depends on configuration made in the **What to do, when event log is full.** For more information on it, see below **EVENT LOG FULL PROCEDURE ON PAGE 36**.

Event log full procedure

With this "event log full" setting (3) you can define how to proceed when the log is about to reach limit. You can choose from these options:

• **No notification**: No action at all. The log will do nothing else but preserve the already collected log information (if the **Event log** is **Enabled**). When the log is full, there is no space for new log information. The service center will NOT be informed of this at all.
However, it is still possible to recall (or clear) the log "over the air" by sending a specific MPTP message separately to the device.

• **CSD**: When the log reaches the limit, the log information will be sent automatically as a CSD call to a pre-configured CSD number. There are three sending attempts.

• **SMS**: When the log reaches the limit, the device will send an SMS notification informing that the log is almost full. A new log information cannot be stored unless the old log has been separately cleared or recalled by the service center or an authorized number.

• **First SMS, then CSD**: When the log reaches the limit, an SMS notification will be sent informing the service center of an incoming log transfer. Then the log information will be sent automatically as a CSD call to a pre-configured CSD number. There are three sending attempts.

CSD number

Key in the CSD data call number (4). The number is needed for transferring log information from the device to the receiving mobile phone, which is connected to the computer.

NOTE: In order to use the CSD data connection, you need to have a specific SIM card, which is equipped with high speed multidata feature. Multidata feature includes a separate data call phone number (i.e. CSD number) for data reception. In order to get this feature, please contact your network operator.

Insert this specific SIM card in the receiving mobile phone, (to which the log will be sent).

For more information on receiving the log, see REMOTE TRANSFER ON PAGE 50.

SMS number

Key in the SMS number (5).

The number is needed in order to inform and warn the service center of some events and errors which may occur on the way.

TRANSFERRING OR CLEARING THE LOG

In order to be able to collect new log information, the old log information must be transferred or cleared.

1. If the selected procedure option contains a CSD call, the old log will be cleared **automatically after successful CSD call**.

    - However, the CSD data call can fail for reasons, such as: CSD number is not set, establishing data call connection is failed, ongoing data call is disconnected, or an emergency call (or some other primary function) is activated during the data call transmission.
    - If the CSD call fails **after three attempts,** an SMS will be sent to the service center informing of reasons for failure.

2. Clearing or transferring the log can also be done **individually, by sending a specific MPTP message** to the device, after which the device sends or deletes the log.

    - Proceed this way if the CSD call fails after three attempts, or the selected procedure option does not contain a CSD call at all.

3. The Event log information can also be transferred or cleared **locally, by using the Benewin software and BWTrackbox cable**.

    - You may proceed this way if you can wait until the device "returns home".

For more information on entire process, see also **RECALLING LOGGED DATA (I/O MODEL ONLY) ON PAGE 49**.

POSITION LOG INTERVAL

With the position log interval setting you can determine the device to store plain positions at pre-defined intervals. This way positions are calculated and logged more frequently.

Key in the interval in seconds. The interval can be 65535 seconds, at maximum.

If the value is set to zero (0), the position log interval is NOT in use.

Waypoint tracking

1	2	3	4	5
ID	Active	Name	Latitude	Longitude	Radius (in
1	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
2	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
3	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
4	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
5	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
6	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
7	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
8	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
9	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
10	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
11	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
12	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
13	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
14	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
15	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
16	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
17	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	
18	☐		N 00° 00' 00.0"	E 000° 00' 00.0"	

Waypoint tracking is remotely controlled by the service center. When the waypoint tracking is turned on, the position information will be sent to the service center only when the device is moving in to the pre-defined area.

NOTE: If the device moves in to the same area more than once, new tracking messages will be sent only in case the device has been far away (over 100 meters of the borderline) and stayed far away for over a minute before returning back in.

You can determine up to 30 separate, circular areas. The areas are separated from each other by defining an ID number (1) and a name (3) individually for each area.

The waypoint area can be determined by keying in center point coordinates, both latitude and longitude (4) and a radius of an area in 10 meters (5). E.g. by entering 5, your actual radius will be set for 50 meters (minimum).

To activate the waypoint, check the **Active** box (2), to deactivate the waypoint, leave the check box blank.

NOTE: The waypoint tracking does not contain interval or duration options, i.e. the waypoint tracking must be separately deactivated when it is no longer needed.

Essential phone numbers, such as **Service center number** and **SMS service number** must be configured in the device. In the Benewin Trackbox software, these numbers can be set in the **General telematic settings**. For more information, see .

CODE SETTINGS

Automatic PIN entry

The PIN code can be pre-programmed to the device EEPROM. It cannot be read by any means from the device. In startup the PIN code is entered automatically by the device software.

The PIN code can be changed in the Benewin by choosing Change PIN code from the Mobile menu. Key in the new code and confirm it.

The option is available only when the Trackbox is connected to the software.

Security code

The security code secures telematic settings. If the setting is enabled, the code is requested each time when powering up the system (software in connection with the device).

The security code settings are located in the Mobile menu.

- **To enable the code**, check the box. To disable the code, leave the check box blank.
- **To change the code**, first click the corresponding box. Key in the old code, key in the new code and confirm it.

PART B: OPERATING THE TRACKBOX

INCOMING CALLS AND MESSAGES

The device can receive calls, messages and requests. With such messages you will make the device to activate functions, update settings, send positions or logged data and so on.

For incoming calls and messages

• a valid SIM card must be inserted and

• the device must be turned on.

Incoming calls

It is possible to listen in the Trackbox and its surroundings. The device answers an incoming call automatically after certain number of rings,

The **Auto answer** setting must be turned on (the box must be checked), otherwise an incoming call is dropped at once.

The **Audio** setting should be set to **Internal**, when using the device´s own built-in microphone.

Incoming short messages

An incoming short message is echoed to the system connector, so that an external device can check it. Reading, writing, sending and receiving normal short messages via the Trackbox is possible **only in case** the Trackbox is connected to an external device, such as a computer. For more information, see SHORT MESSAGES ON PAGE 11.

No messages are ever stored on SIM card. Even the MPTP messages are cleared once they are processed.

Incoming MPTP messages

An incoming short message is processed only if it is a known MPTP message.

If the **Authorization** setting is enabled, only messages from authorized numbers are processed, others are discarded at once. For more information, see AUTHORIZATION ON PAGE 25. **Authorized numbers** include service center and emergency center numbers and all the numbers stored in the list of authorized numbers. For more information, see AUTHORIZED NUMBERS ON PAGE 30.

REMOTE CONFIGURATION MESSAGE

The device may receive a specific MPTP message for the remote configuration. Remote configuration messages contain new or updated settings for e.g. emergency numbers, authorized numbers, AGPS-parameters, activity timer and GPS operating mode.

For more information on remote configuration, see the separate MPTP document.

SYSTEM CONNECTOR CONTROL MESSAGE

The device may receive a specified MPTP message for the system connector setting. According to the parameters of the message, the setting will turn a pin connector on or off.

The pin connectors are located inside the device, in the accessory module.

LOCATION REQUEST MESSAGES

The device may receive several different messages requesting location. Such messages could be, e.g. Location request (LOC) messages, Location history request, Latest position (?HIS) messages. For more information on how the device responds these messages, see POSITIONING FEATURES ON PAGE 47.

For more information on how to create location request messages, see the separate MPTP document.

AT commands

The device may receive an AT command via the configuration port.

The port is located inside the device, in the lower left part of the accessory module. For more information, see THE CONFIGURATION PORT ON PAGE 8.

The AT commands can be used for carrying out similar things that are done via MPTP messages.

For example, AT commands are used when configuring settings with the Benewin software.

For more information on handling AT commands, please see the separate document on AT commands, located at the Web site www.benefon.com.

OUTGOING CALLS AND MESSAGES

Depending on the configuration, the device may send some MPTP messages to the service center or authorized numbers. Such messages can be, e.g. power notifications or calculated positions.

Power notifications

BATTERY LOW MESSAGE

When the device detects the battery is low, the device will send an appropriate MPTP message to a specific number, assuming the MPTP power notifications are enabled.

The message will be sent only in case the event takes place for the first time after powering up or being disconnected from the mains.

MAINS CONNECTION/DISCONNECTION MESSAGE

When the device detects that it is being connected to or disconnected from mains, the device will send an appropriate MPTP message to a specific number, assuming the MPTP power notifications are enabled.

Emergency cycle (I/O model only)

EMERGENCY MESSAGES AND CALLS

In order to send emergency messages, the device must have I/O functionality and a separate emergency switch. The emergency switch can also be some kind of light/movement/pressure indicator. Additionally the device must be configured correctly. For more information on emergency settings, see EMERGENCY SETTINGS ON PAGE 27.

As the emergency cycle takes place, the device is turned on automatically (if it is currently off).

The emergency message contains both GPS coordinates and GSM network measurement report.

The emergency message (including the latest position information available) is put through via the emergency input pin and I/O cable.

If an external audio (a combination of a microphone and speaker) is connected, a voice call to both ways is possible. Otherwise voice call means opening one-way audio: from the device to the emergency center number.

EMERGENCY CYCLE CHECK LIST

Necessary settings

1. The device must be the I/O model, which includes the **I/O functionality**.

2. **SIM card** must be inserted in the device.

3. All required **settings** must be **configured** and **transferred** in the device in advance. Such settings are listed below.

   - Configuring settings can be done either by using the BeneWin software and transferring the settings to the device locally, via the data cable, OR by using the MPTP messages and transferring the settings remotely as an OTA (Over the Air) message.

4. **Emergency center numbers** must be set in the device. For more information, see EMERGENCY CENTER NUMBERS ON PAGE 28.

5. **The emergency pin** must be enabled. For more information, see TURNING THE EMERGENCY PIN ON OR OFF ON PAGE 29.

6. **Normal status for the emergency pin** must be defined. A change in the normal status works as a trigger for an emergency cycle to start. For more information, see SETTING NORMAL STATUS ON PAGE 29.

Voluntary settings

1. **Emergency message confirmation** can be set. For more information, see EMERGENCY CONFIRMATION ON PAGE 28.

   - If the emergency confirmation is activated, the device waits for an acknowledgement message. If it is not getting it in the pre-defined time, the device continues sending the emergency message until it is acknowledged. If the emergency center contains several emergency numbers, the device will after unsuccessful messaging send the message to the next number on the list.

2. **Emergency call connection waiting time** can be set. For more information, see EMERGENCY CALL CYCLE MODE ON PAGE 28.

3. **Emergency call cycle mode** can be set. For more information, see EMERGENCY CALL CYCLE MODE ON PAGE 28.

4. **Response time (a delay for starting an emergency cycle)** can be set. For more information, see DEFINING RESPONSE TIME ON PAGE 29.

5. **Event log** can be set. When the Event log is enabled, the information of the event will also be logged. For more information, see EVENT LOG ON PAGE 35.

Circumstances which may affect on emergency cycle

1. Power supply

- Even when the device includes a continuous, fixed power supply, it is possible the power source might run down or be disconnected for a period of time because of weather conditions or other circumstances (e.g.mischief). For such situations, ensure that there is adquately charge left in the battery. Battery should never be out-of-charge.

2. Message transmission errors

- Deliveries of all messages, including MPTP messages, are fully handled by and in the responsibility of the GSM network operator and services can vary substantially.

3. Shadow areas

- If the device is permanently installed in a location where frequently occurs poor satellite coverage or weak network signal, external GPS and/or GSM antennas must be installed with the device. Shadow areas may also occur momentarily, while moving from place to place, especially in tunnels, valleys.

THE EMERGENCY CYCLE WHEN ONLY MAKING CALLS

1. An emergency cycle can be initiated by pressing the separate emergency switch. The emergency switch can also be replaced by some kind of an indicator. The emergency cycle starts as the state of the circuit (set for the emergency pin) changes.

2. The device calls the emergency center numbers starting from the top of the list.

3. A voice call in progress.

THE EMERGENCY CYCLE WHEN ONLY SENDING SHORT MESSAGES

1. An emergency cycle can be initiated by pressing the separate emergency switch. The emergency switch can also be replaced by some kind of an indicator. The emergency cycle starts as the state of the circuit (set for the emergency pin) changes.

2. The device sends the latest position information along with the message. If current position coordinates are not available, previous coordinates will be sent instead.

THE EMERGENCY CYCLE WHEN BOTH SENDING SHORT MESSAGES AND MAKING CALLS

1. An emergency cycle can be initiated by pressing the separate emergency switch. The emergency switch can also be replaced by some kind of an indicator. The emergency cycle starts as the state of the circuit (set for the emergency pin) changes.

2. It depends on configuration, whether the device first sends all the messages and then starts to make calls, or sends messages and makes calls in pairs.

3. The device sends the latest position information along with the message. If current position coordinates are not available, previous coordinates will be sent instead.

4. The device calls the emergency center numbers.

5. A voice call in progress.

Sending status messages

Status messages must be created in advance. For more information, see CREATING STATUS MESSAGES ON PAGE 31.

The status messages are sent to the pre-defined numbers, e.g. to the service center number. The number must be set in advance.

The device has three sending attempts. If there is no service at the moment, it depends on the MPTP Protocol message storage setting whether the message will be sent later or not. For more information, see PROTOCOL SETTINGS ON PAGE 25.

STATUS MESSAGES CHECK LIST

Necessary settings

1. The device must be the I/O model, which includes the I/O functionality. Only the I/O model contains pin connectors. There can be several different status messages (one for each input pin).

2. Status messages must be created and configured in the device. A status message includes the corresponding pin number, message text, additional text and the phone number (i.e. the destination number). For more information, see STATUS MESSAGES ON PAGE 31.

3. The needed pin connectors must be enabled. For more information, see TURNING THE INPUT PIN ON OR OFF

ON PAGE 33 (for digital input pins), and TURNING THE INPUT PIN ON OR OFF ON PAGE 34 (for analogue pins).

4. **Normal status** for the needed pins must be defined. A change in the normal status works as a trigger for sending a status message. For more information, see SETTING NORMAL STATUS ON PAGE 33 (for digital input pins) and SETTING NORMAL STATUS ON PAGE 34 (for analogue pins).

5. **Notifications** for the needed pins must be enabled. With the notifications enabled, the status message will be sent. For more information, see SENDING NOTIFICATION ON PAGE 33 (for digital pins) and SENDING NOTIFICATION ON PAGE 34 (for analogue pins).

6. **Reference values** for the needed analogue pins must be defined. For more information, see SETTING REFERENCE VALUES ON PAGE 34.

Voluntary settings

1. **Notification delay** can be set. For more information, see DEFINING RESPONSE TIME ON PAGE 33 (for digital input pins) and DEFINING RESPONSE TIME ON PAGE 34 (for analogue pins).

2. **Event log** can be set. When the Event log is enabled, the information of the event will also be logged. For more information, see EVENT LOG ON PAGE 35.

Circumstances which may affect on sending status messages

1. **Power supply**

   - Even when the device includes a continuous, fixed power supply, it is possible the power source might run down or be disconnected for a period of time because of weather conditions or other circumstances (e.g.mischief). For such situations, ensure that there is adquately charge left in the battery. Battery should never be out-of-charge.

2. **Message transmission errors**

   - Deliveries of all messages, including MPTP messages, are fully handled by and in the responsibility of the GSM network operator and services can vary substantially.

3. **Shadow areas**

   - If the device is permanently installed in a location where frequently occurs poor satellite coverage or weak network signal, external GPS and/or GSM antennas must be installed with the device. Shadow areas may also occur momentarily, while moving from place to place, especially in tunnels, valleys.

Positioning features

ACTIVITY TIMER PROCEDURE

1. The activity timer is activated as soon as the time set in the **Start time** data field matches with the current time.

2. The device will be turned on. This automatic power-up does not cause the LEDs to be lit.

3. According to configuration the position is calculated and sent to the service center. For more information on configuring activity timer, see ACTIVITY TIMER ON PAGE 14.

4. The device will then remain in idle mode for the pre-defined time after which it will be turned off.

However, the power-down can be postponed by sending a **Location Request (LOC)** message to the device. Postponing might be necessary for e.g. completing all ongoing events before the power will be turned off.

All tracking messages, including LOC messages, override the **Interval** time set in the **Activity timer**. For more information on LOC messages, see the chapter RESPONDING LOCATION REQUEST, LOC MESSAGES ON PAGE 47.

RESPONDING LOCATION REQUEST, LOC MESSAGES

The device responds the location request this way: It switches the GPS on (if it is currently off), updates location, sends it and switches the GPS off. Then the device returns to normal idle mode.

Device also checks if an AGPS can be retrieved and requests it automatically to speed up calculation. Using the AGPS requires that the parameters for the AGPS are configured in the device. For more information on AGPS settings, see ASSISTED GPS ON PAGE 19.

• Position update successful ->New position is sent to the service center.

• Position update NOT possible within pre-defined minutes **->** Old position and data is sent to the service center, not updated.

• The message includes a time stamp indicating age of the position.

RESPONDING LOCATION HISTORY REQUEST

The device responds the location history request by sending several old positions with desired intervals to the requesting number (service center number). If requested, the whole trace of the device can be unravelled afterwards.

Otherwise responding procedure works the same way as it does in a single location request (see above).

RESPONDING LATEST POSITION REQUEST, ?HIS MESSAGES

The device responds the latest position request this way: It sends the latest position to the service center **immediately**. The position sent is the very latest one found in the device memory.

The GPS stays in off-state: Position is not refreshed.

NETWORK POSITIONING SUPPORT

The device can be requested to send its current GSM network parameters at any time. Requesting number could be, e.g. service center. The message that the device sends as a response is called the Network Measurement Report (NMR).

The device will send network parameters to the requesting number automatically in two cases:

• Authorization is enabled and the requesting number is authorized.

• Authorization is entirely disabled.

Emergency center and service center numbers are always authorized.

If the authorization is enabled and the position request comes from an unauthorized number, the device will discard the request.

If the service center number is defined and authorization is disabled, the response is always sent to the service center number.

The Network Measurement Report contains rough data and the position needs to be separately calculated by taking into account surrounding base stations and distances in between them. Calculation of the position needs a separate server, available from Benefon Partners. The device cannot calculate the position based on network parameters by itself.

Recalling logged data (I/O model only)

The device can be configured to store positions and I/O events registered by pins. Once the log is full, the device maintains already collected log information but does NOT store any new events unless the log is cleared or sent to the service center. For more information on logging events and positions, and transferring the log, see .

You have two ways to recall logged information: Local transfer and remote transfer.

1 Track Box 2.0 EGSM900/1808

MOBILE PHONE NODE

Telematic settings, User settings and Event log, which you have just transferred from the device **locally** (by Benewin) are shown up here.

2 My Computer

COMPUTER NODE

- Access to existing Benewin files just stored in the computer.
- Access to creating new Benewin files.
- In case you have transferred the Event log **remotely** (by a CSD call) to your computer, the Event log can be accessed from here.

LOCAL TRANSFER

When the device returns home, it is connected to the Benewin software by BWTrackbox cable. The log will be loaded from the device to the software the same way as other settings. For more information, see and .

When the Benewin loads the log directly from the device, the event log file appears automatically in the display in readable text format. The **Event log** icon is shown under the mobile phone node (1) on the left, and by clicking the icon normally the actual event log file will be shown on the right.

IF THE DEVICE DOES NOT LOAD Event log ICON IN THE DISPLAY, MAKE SURE THAT

- The device contains logged information.
- The **Load event log** box is checked in Benewin. You can find it as follows: Open the **Edit** menu, select **Settings** and go to the **Mobile phone startup tasks** to check the box.

To load the log from the device later on in the same session, select **Load event log** from the **Mobile** menu.

REMOTE TRANSFER

The device sends the log to the service center remotely, as a CSD call, using Z-modem protocol. The CSD data call number and service center number must be configured in the Trackbox in advance. For more information, see SERVICE CENTER NUMBER ON PAGE 25 and CSD NUMBER ON PAGE 36.

The computer must contain a modem application which supports Z-modem protocol (e.g. Windows Hyperterminal).
NOTE: Check the modem settings. Serial port must be correct, and transfer speed must be set according to receiving phone. E.g. when using the Benefon mobile phone as the receiving phone, transfer speed must be set to 19200 Bits/Second.

During the transfer, the receiving mobile phone must be connected to the computer by a data cable/BWTrackbox cable.
NOTE: Automatic answer setting of the receiving mobile phone is for voice calls, not data calls and thus it must be turned off.

In order to make the modem **answer automatically** incoming data calls, key in the command ats0=1 on the screen of the modem and press Enter on the keyboard. The command is associated with the receiving mobile phone. (the automatic answer for data calls can be turned off by keying in the command ats0=0)

The incoming log file will be found in your computer. Default destination directory depends on modem settings and can be changed. In most cases the log file can be located at the root directory of the modem application. The binary-coded log file identifier is .**DAT**. Here is an example case by using Hyperterminal, see below:

STEP1: CONFIGURING MODEM APPLICATION FOR DATA RECEPTION

1. Connect the receiving mobile phone to the computer by data cable and open the **Windows Hyperterminal** modem application.

2. Open **New connection** (from the **File** menu if the dialog box is not displayed). **Name** the connection -> **Ok**. Select **port** for the connection (e.g. COM1) -> **Ok**.

3. Set transfer speed to **19200 Bits/Second** ->Ok.

4. Open **Receive file..** from the **Transfer** menu. Click **Browse** and find the desired destination directory ->**Ok**. Select **Z-modem** for **Receiving protocol** -> **Receive**.

When the modem configuration is done, you may save the file by clicking **Save as...** from the **File** menu.

Close the connection by clicking **Disconnect** from the **Call** menu.

From now on, whenever you need this connection, you can use the profile just created by selecting **Open...** from the **File** menu.

STEP2: RECEIVING REMOTELY SENT LOG FILE

Connect the receiving phone to the computer by data cable/BWTrackbox cable and open the **Windows Hyperterminal** modem application.

To ensure the connection between mobile phone and the modem, you may key in **ATI** on the screen and press Enter -> the modem will identify receiving mobile phone.

Key in **ats0=1** and press Enter -> the mobile phone will answer automatically to incoming CSD calls.

When the mobile phone starts alerting, the modem will display **RING**. When the mobile phone answers, the data transfer dialog box appears on the screen. When the transfer is finished, the dialog box disappears and the connection can be switched off.

If you do not use the automatic answer, do as follows (when the phone starts alerting): Press the Hook-up key on the phone keypad OR key in **ATA** on the screen and press Enter.

OPENING REMOTELY SENT LOG FILE IN BENEWIN

Start the Benewin software and open the event log file as follows:

1. Highlight the **Event log** icon shown on the left side of the screen, under **My computer** node (2).

2. Choose **Open** from the **File** menu (or, click the mouse´s *right* button and highlight **Open**).

3. Click the **Files of type** setting and highlight **All Benewin files**.

4. Browse the directories and files until the destination directory and file is found. The file identifier is binary.**DAT** Click **Open**.

Event log file is originally in binary-coded format. As the file is opened in Benewin, the software generates the file and displays it as a table in a readable text format.

PROCESSING EVENT LOG IN BENEWIN

Saving the log file

To save the event log in Benewin, choose **Save** or **Save as..** from the **File** menu. The event log file will be saved in readable text format (.log). Also the binary coded log file (.DAT), which was transferred as a CSD call, can be stored in readable text format (.log).

Deleting the log file

To delete the event log in Benewin, choose **Delete event log** from **Mobile** menu. NOTE: If you delete event log from mobile phone node, the log is lost once and for all. So, make sure the log is stored in some place else in case you need the log information afterwards.

PROCESSING EVENT LOG BY USING SOME OTHER APPLICATION

Event log files cannot be edited in Benewin software. In order to **modify** or **print** the log file, do as follows:

1. First save the log in Benewin. The log file identifier will become **.log**.

2. Open Windows Excel or Notepad. Make sure, the **Files of type** shows **All files**.

3. Open the log file in the application.

PART C: POWER MANAGEMENT

POWER SUPPLY

The device contains built-in charger plus one of the following batteries:

• Li-Ion Backup battery 650 mAh (BBL78S)

• Standard Li-Ion batteries:

  - 650 mAh (BBL77S)

  - 900 mAh (BBL77N)

  - 1200 mAh (BBL77P)

  - 1700 mAh (BBL77G)

In I/O model it is also possible to use Power adapter (AWC78) instead of batteries. Power adapter uses external power input directly.

The battery type may vary depending on the market area and sales package. In unclear cases, check the battery compatibility with the dealer.

CHARGING

The battery must be fully charged before taken into use. The battery will reach its full capacity only after two or three charging times.

The device controls the charging status, the battery temperature and power supply during the charging operation. You can find out the status of the battery e.g. by monitoring the indicating LEDs.

The ideal temperature range for charging is $+10°...+30°C$. If charging the battery above or below these temperatures the life of a battery may be shortened. Also, the battery may not reach full capacity.

Never charge a standard battery at temperatures below 0°C. When using a backup battery, charging below 0°C is prevented automatically.

Charging time depends on what kind of a charger and battery you have in use.

Also note that humidity, temperature, age of the battery and currently used devices (e.g. the GPS) affect the time spent on charging.

BATTERY CARE AND MAINTENANCE

The continuous operating time is less when using an old battery than when using a new battery.

When storing batteries for a long time, it is recommended that the batteries are kept cool and fully charged in a dry place.

Proper care and storage guarantee best possible battery capacity and maximum battery life.

DISPOSAL OF A BATTERY

Li-Ion batteries do not contain heavy metals which can damage the environment. Li-Ion batteries should be disposed of according to the country-specific regulations.

PART D: ACCESSORIES

BATTERIES

CODE	PART
YO2301	Standard Li-Ion battery, 650 mAh
YO2413	Li-Ion Power battery, 1700 mAh
YO2611	Li-Ion Backup battery, 650 mAh
YO2610	Power adapter

EXTERNAL ANTENNAS

CODE	PART
ZE2408	External GPS antenna, Radiall
ZE3231	External GSM antenna, Drill mount (fixed)
ZE3230	External GSM antenna, Glass mount
ZE3232	External GSM antenna, Cottage mount
YA2414	Combi antenna,GPS+GSM (coming up)
YC2608	GPS antenna adapter (required for external GPS antenna)
YC2607	GSM antenna adapter (required for external GSM antenna)

BWTRACKBOX CABLES

CODE	PART
ZE2306	Data cable APC70
ZE2406	Data/NMEA cable

PART E: IMPORTANT SAFETY INFORMATION

DEVICE CARE AND MAINTENANCE

NOTE: The instructions below apply to the device, its accessories, batteries in use as well as batteries taken out of use.

- Dust and dirt may damage the moving parts of the device. Do not use or keep the device in dusty or dirty surroundings.

- Do not open the battery or solid parts of the device by yourself or pierce holes in them.

- Rough handling may break the circuitry inside the device. Do not drop, knock, twist or shake the device or its battery.

- Keep the device dry. Liquids contain minerals which could corrode electronic circuits. If the device gets wet, turn it off and dry the device and the battery immediately. Put the device into an upright position and let it dry. It is recommended that a dealer or service personnel check that the device functions properly.

- Do not wet the device or battery or immerse either one in water. Even though the device is tough, it is not categorized to be used in damp conditions. Protection against dust and water can be considerably improved by assembling the device carefully, inserting the rubber seal for tighten battery and using o-ring seals with screws. If the device is frequently used in damp conditions, it is recommended to provide it with separate housing, which does not prevent antenna signals.

- External accessories, connections and attachements must be separately protected against dust and water. In case there are holes pierced in the device for some cable inlets, e.g. for the BWTrackbox cable, and such cables are not in place, the holes must be separately covered by some waterproof material.

- Protect the device from heat. High temperatures may shorten the life of the electronical devices, melt or warp plastics and damage batteries. Do not warm up the device or battery or use it near fire.

- Do not short-circuit the battery. Exposing the metal strips of the battery to a close contact with a metallic object, such as a coin, a clip or a set of keys can cause accidental short-circuiting and damage the battery.

- Charge and recharge the battery only with the charger specified in the manual. Use the battery only for the purpose it is intended.

- Clean the device with a soft cloth, dampened slightly with mild soapy water. Do not clean the device with harsh chemicals, solvents or other corrosive substances.

- Only allow service personnel authorised by the dealer to assemble, connect and service the device.

SAFETY AND PRECAUTIONS

Telematics protocol

MPTP (Mobile Phone Telematic Protocol) allows, among other things, tracking of the device over the SMS communication.

Automatically sent telematics messages are only allowed to authorized numbers configured in the device. Such numbers can be, e.g. emergency and service center numbers.

Position of the device is retrieved by the GPS, or by the network parameters - the latter is a network-dependent service.

The carrier for telematics messages is an SMS-message. Deliveries of all messages is fully handled by and in the responsibility of the GSM network operator and services can vary substantially.

The charge of a protocol message is determined on the contract by the service provider.

GPS

The Global Positioning System (GPS) is operated by the government of the United States, which is solely responsible for its accuracy and maintenance. The system is subject to changes that could affect the accuracy and performance of all GPS equipment.

Emergency calls

The device is an aid and should never be relied upon as an only emergency device. Its functionality is dependent on GSM network and GPS satellites which may not be available all the time.

To make emergency calls, the device must be turned on and located in an area with adequate GSM network signal strength. A valid SIM card must be inserted in the device and the device must be configured to make emergency calls.

Connection is not quaranteed in all conditions. Rough terrain or large buildings may limit the operation of the device. Never completely rely upon the device for essential communications.

General

- Traffic: It is advisable to strictly adhere to all eventual European and national legislation and also honour other eventual safety recommendations when using the device while driving a vehicle. When receiving a call in an awkward driving situation, you must always put safety before other priorities and courtesy. If you feel uncomfortable about using a device while driving, you should not use it.

- Air bags: An air bag inflates with great force. Do not place objects, including either installed or portable wireless devices, in an area over the air bag or in the air bag deployment area.

- **External alert**: The use of the alert device to operate a vehicle´s lights or horn on public roads is not permitted.

- **Children**: Keep the device and its accessories away from small children to avoid causing injury to themselves or others. Damage to the device or its accessories is also thus avoided.

- **Power supply**: The device is intended for use with the power supplies specified in PART C: POWER MANAGEMENT ON PAGE 52. Any other usage will invalidate any approval given to this apparatus and may be dangerous.

- **Other accessories**: Any other accessories used should also be approved by the device manufacturer. Check the compatibility of new power supply units and other accessories at the dealer.

- **Connections**: All installations, connections and service regarding the device, its power supply and accessories should be approved by the device manufacturer. Use of any unauthorized accessories, modifications or attachments may be dangerous and voids the device warranty if said accessories cause damage or a defect to the device. Note that device´s own antenna must be disconnected when attaching an external GSM antenna to the device. The external GSM antenna adapter is a standard cable containing two separate connectors: SMA for the Trackbox, and FME for the external antenna.

- **Magnetic fields**: The device contains small magnetic components. Even though the magnetic fields of the components are weak, they might damage magnetic cards, such as bank and credit cards. We recommend that you would keep the device away from magnetic cards.

Radio frequency (RF) energy

- **Aircrafts**: Turn the device off before boarding any aircraft and do not use the device while in the air, **also make sure that the automatic timer function will not activate the device during the flight**. Besides being illegal, the use of a device in an aircraft may endanger the operation of the aircraft or disrupt the mobile network. Failure to comply with this instruction may lead to suspension or denial of mobile phone services, and possibly even legal action.

- **Hospitals**: Turn the device off before entering hospitals or other health care facilities where medical electronic equipment may be in use. Such devices can be extremely sensitive to radio frequency interference. Only use the device with permission and under the instruction of hospital staff.

- **Medical devices**: Remember that any personal medical devices (such as hearing aids or pacemakers) may be affected by RF energy if they are not adequately shielded. Consult the manufacturer or vendor of the equipment to determine the proper shielding.

- **Posted facilities and country-specific regulations**: Power down the device in any facility where posted notices so require. Also follow all the country-specific regulations applicable to where the device is used.

- **Potentially explosive or flammable atmospheres**: Turn off the device at refuelling points, e.g. gas stations. Also observe restrictions on the use of radio equipment in fuel depots, chemical plants or where blasting operations are in progress because remote control RF devices are often used to set off explosives. Do not store or carry flammable liquids, gases or explosive materials in the same compartment as the device, its parts or accessories.

- **Other electronical equipment**: Using the device may cause interference with electronic systems of a vehicle or electronic devices in a vehicle if they are not adequately shielded. Consult the manufacturer or the vehicle seller to determine the proper shielding.

- **Computers**: Remember that using the device close to a computer may cause interference. When using the device near such equipment keep a distance of about one meter.

- **Body parts**: When the device is in operation do not touch the antenna with eyes, mouth or bare skin to guarantee proper function.

Ancillary equipment

Benefon cannot be responsible in any way for any ancillary equipment not provided by Benefon, which is attached to or used in connection with Trackbox or for the operation of Trackbox with any ancillary equipment and all such equipment is expressively excluded from the warranty of Trackbox. Because each system which Trackbox may use is unique, Benefon disclaims liability for range, coverage or operation of the system as a whole under this warranty.

BENEFON WARRANTY

A warranty certificate with the date of purchase is enclosed in the delivery. Service operations are carried out for free at Benefon during the warranty period.

BENEFON warrants its products to be free of defects in material or workmanship when leaving the factory. If a defect is found during the given warranty period, the customer should without delay and latest within the given warranty period return the product, together with the warranty certificate and the purchase receipt, to the BENEFON dealer who sold the product or, if this is not feasible, to any other authorised BENEFON sales or service facility.

A defective product with valid BENEFON warranty will be made good by having it repaired or replaced, as seen appropriate by BENEFON in each case. Repair or replacement of the product does not extend the original warranty period.

The warranty does not cover defects caused by using the product with peripheral equipment or accessories not supplied or approved by BENEFON, or defects caused by repairs or modifications carried out by parties not authorised by BENEFON.

Neither does the warranty cover defects directly attributable to abuse, misuse or accident of any kind nor changes in consumable parts (e.g .batteries) attributable to normal wear and tear.

The warranty is void if the manufacturing identity data attached to the product have been altered, erased or rendered unidentifiable.

BENEFON assumes strictly no responsibility for special, incidental, punitive or consequential damages, or loss of use.

The warranty period of this BENEFON product expires.........
....

BENEFON dealer who sold the product ....

....

....

IMEI code/serial number..

....

BENEFON

P.O. Box 84, FIN-24101 Salo, Finland,
Fax int. +358 2 733 2633